DOCUMENT RESUME

ED 326 409 SE 051 768

TITLE	Cycles in the Sand. Community Study Unit, Grade 2. Teacher Edition, Field Trip Guide for Teachers, and Student Book.
INSTITUTION	Lee County School District, Ft. Myers, FL. Dept. of Environmental Education and Instructional Development Services.
PUB DATE	89
NOTE	76p.; For related documents, see SE 051 766-777.
AVAILABLE FROM	Department of Environmental Education, Lee County Schools, 2055 Central Avenue, Ft. Myers, FL 33901 ($2.50).
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052) -- Guides - Classroom Use - Materials (For Learner) (051)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Ecology; Educational Objectives; *Elementary School Science; Experiential Learning; *Field Trips; *Grade 2; *Interdisciplinary Approach; *Marine Education; Primary Education; Science Activities; Science Education; Teaching Guides
IDENTIFIERS	*4Mat System Model

ABSTRACT

This unit of study is made up of a series of activities designed to acquaint the students with changes and cycles in the world around them. The unit includes a field trip to a local beach where a number of changes can be observed first-hand. Life cycles, as well as the water cycle, are introduced in the unit through a variety of pre-trip classroom activities. Changes caused by the elements, sun, water, air, people, and wildlife, can be observed on the trip and in the classroom. This set of documents includes an overview, objectives, a field trip guide for teachers, and four sections of activities. Appendices include the 4Mat model, an application of this unit to the 4Mat model, a cognitive pre/posttest, a student book, a glossary, a discussion of scheduling considerations, and a parent permission form. (CW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED326109

SE

PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

[illegible]

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

CYCLES IN THE SAND

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TEACHER EDITION

COMMUNITY STUDY UNIT

GRADE 2

LEE COUNTY SCHOOLS

SE051768

THE SCHOOL BOARD OF LEE COUNTY

2055 Central Avenue
Fort Myers, Florida

Grace D. Bartleson
Chairman

Suzi Martin, Ph.D.
Vice Chairman

John L. Pate
Member

Margaret Sirianni
Member

Barbara Wallace
Member

Karl Engel
Superintendent

Dr. Charles Godwin
Asst. Superintendent for Instruction

Dr. J.P. Lutz
Director, Elementary Education

Mr. William Hammond
Director, Instructional Development Services and Environmental Education

Overview

This unit of study is made up of a series of activities designed to acquaint the students with changes and cycles in the world around them. The unit includes a field trip to a local beach where a number of changes can be observed first-hand. Life cycles, as well as the water cycle, are introduced in the unit through a variety of pre-trip classroom activities. Changes caused by the elements, sun, water, air, people, and wildlife, can be observed on the trip and in the classroom.

TABLE OF CONTENTS

Overview 1
Continuum Connections. 4
Concepts / Objectives. 5
Introduction 6
SECTION 1 - *A Reason for Learning.* 7
Pre-Test 7
Crumbled Crackers. 7
Unconditioned Air. 7
Evaporation. 7
Pulse Rates. 8
Filtering. 8
Does Everything Change? 8
Change - Values. 9
SECTION 2 - *Teaching & Learning.* 11
Vocabulary 11
Change 13
Cycle. 13
Little Johnny Raindrop 14
Shell Slides 14
Beach Changes. 14
Picture Frames 14
"The Beach Walk" Story 16
Background Information for the Teacher 19
The Shell Cycle. 21

SECTION 3 - *Trying It Out* 23
Bus Activities. 23
Orientation 24
Picture the Beach 24
Shell Cycle 24
The "Water-Walk" Variations 25
Change Detectives 26
Scientists' Vacation 26
Field Trip Leadership Responsibilities. 27
SECTION 4 - *Self Teaching & Extending* 29
Review. 29
What If? 29
What If Skits 30
Little Johnny Raindrop. 30
Sea Turtle Skit 30
Changes Pictures. 30
Writing 31
Bulletin Board. 31
APPENDIX. 33
The Complete 4MAT System Model. 35
4MAT System Model for "Cycles in the Sand" Study Unit . . . 37
Cognitive PRE/POST Test 39
PRE/POST Test Answer Key. 53
Glossary. 55
Model Picture Frame 57
Resource Materials. 59
Scheduling Considerations 61
Parent Permission Form. 62
STUDENT BEACH BOOK. 63
Changes. 65
The Shell Cycle 69
Which Came First? 73

CONTINUUM CONNECTIONS

LANGUAGE ARTS

2B 5 Use reading skills and teacher direction to answer specific questions in content areas.

SCIENCE

2 Recognize that animals grow and change.
Sequence pictures of animals in various stages of life.

6 Understand that water is important to living things because it is used in many ways.
- Discuss ways in which water is used by plants and animals.
- Describe a variety of ways in which people use water.

8 Develop an awareness that water is an environmental agent that is constantly changing.
- Cite personal experiences with land surfaces which have been changed by the movement of water.

15 Realize that you can find out about things by measuring them.

17 Realize that we have units to measure how much and how many.

MATH

19 Determine the measurement of objects.
- Use the inch as a standard unit of measure.
- Use the centimeter as a standard unit of measure.

SOCIAL STUDIES

21 Change is a continuous process within the family unit.
- Identify the ways in which a family can change.

26 Discuss conservation of natural resources and personal responsibility for protecting the environment.

ENVIRONMENTAL

Realize that it is everyone's responsibility to use water wisely since it is a basic ingredient for all life on our planet.

Matter - the substance of which all things are made - passes through cyclic change and is reused over and over again.

CONCEPTS

1. Change is a continuous process in all the universe.
2. Everything changes.
3. Everything (every action) causes change.
4. Change is often part of a cycle.
5. A cycle has no beginning and no end.

OBJECTIVES

The student will be able to:

1. recognize and identify changes that occur over a period of time;
2. explain change as it occurs in the cycles of different things both living and non-living;
3. discuss the water cycle and changes that occur in it;
4. recognize that the sun, water, and people cause changes to occur;
5. show that shells are changed into sand by the action of moving water;
6. recognize that a cycle has no beginning and no end;
7. recognize stages within a cycle and identify their most common sequence pattern.

Introduction

The second grade community study unit is designed to help second-graders focus on the concept of change, specifically change which occurs in cycles. The unit contains a variety of sequential activities and instructional methods which may be employed to help illustrate the concepts. These activities may be used singly or in combination, whichever the teacher feels is most useful to the students. The teacher may also elect to create additional activities or to adapt existing activities in order to create a richer instructional experience for students.

The third section of this unit is a community study field trip to a local beach to allow and encourage hands-on, practical experiences that help the students understand change as a continuous process. The classroom teacher and an Environmental Education field leader will facilitate the field experience.

A Reason for Learning

Section 1

The activities in this section should provide students with experiences that directly link the unit concepts with their personal life experiences. Students must also have a chance to discuss those connections with one another. In this initial phase of the unit students should discover a reason for learning the instructional concepts.

1 PRE-TEST

Give PRE-TEST to students (appendix, pages 33-45).

2. CRUMBLED CRACKERS

Crumble some saltine crackers on the desk to show the students a physical change. Have each student taste a piece of the cracker to show a chemical change. (It will taste salty at first, then sweeter.)

3. UNCONDITIONED AIR

Turn off the air conditioning in your room. See how long it takes the class to notice a change in temperature.

4. EVAPORATION

Fill two jars with water. Tape a ruler to each of the jars. Use the ruler to measure how much water is in each jar. Put a plastic bag over the top of one of the jars and fasten securely with a rubber band. Leave the other jar open. Have the students read the rulers each day for 5 days and record the levels of the water. Is there a change? What happens to the water in the jar covered with plastic?

5. PULSE RATES

Have students check their own pulse by feeling the heartbeat in the throat/neck. Then have them jog or do a quick physical activity for a few minutes. Check the pulse again. Is there a change?

6. FILTERING

Collect two jars of muddy water. Let one jar settle on its own and filter one jar using a regular coffee filter or filter paper. Do changes occur? What are they?

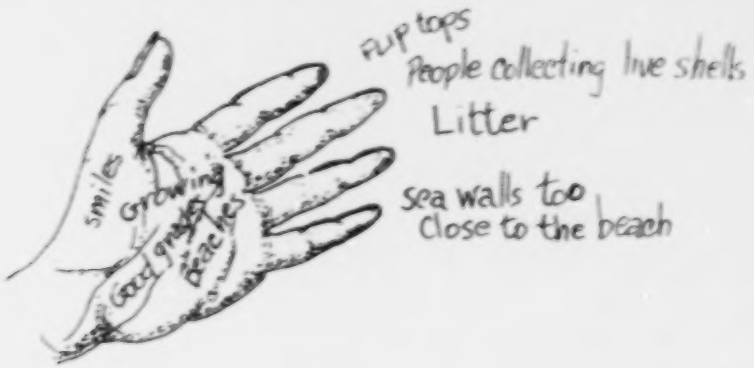
7. DOES EVERYTHING CHANGE?

After your class has experienced one or more of these events, discuss the results. If a change occurred, why did the change occur? What was the change? Could the same kind of change be happening somewhere else? Analyze the event.

Have the students think of one thing in their lives or environment that is not changing. Have the students ask their families to think of one thing that is not changing. Discuss why change is important. How does change affect each student's life?

8. CHANGE - VALUES

Have each student trace a pattern of his/her hand on a piece of paper. Then ask them to label the inside of the hand pattern with changes they have seen that they like. On the outside of the hand print, have the students list changes they have seen that they do not like. Ask the students to figure out a way to change one of the changes that they did not like in a way that makes it better to them.



Teaching & Learning... information

Section 2

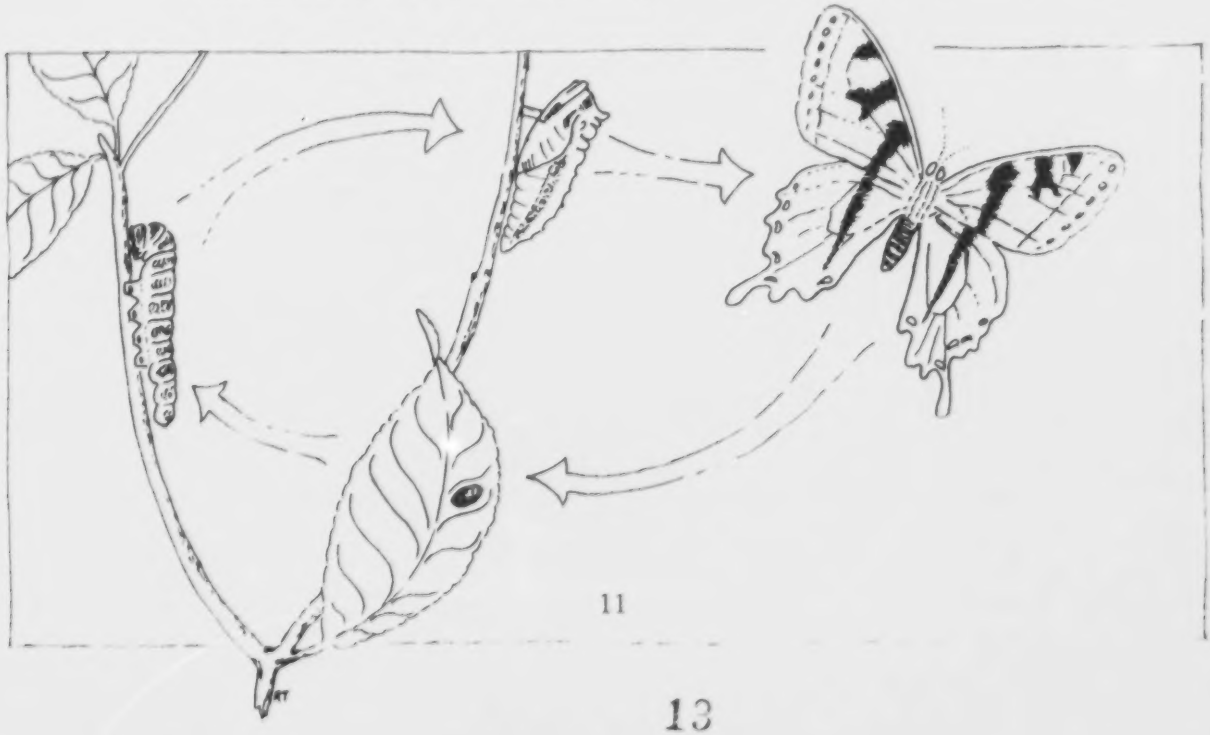
The activities in this section should focus on what the student needs to know in order to understand the concepts in the unit. The student should acquire information from the teacher, films, supplemental readings, the library, or experts, etc. in order to develop a foundation of knowledge basic to understanding the instructional concepts.

1. VOCABULARY

Teach the vocabulary for the unit: (a Glossary is in the Appendix)

-change	-rain	-beach
-cycle	-vapor	-shell
-life cycle	-water	-whole
-water cycle	-sun	-piece

To help the students learn the vocabulary, have them form groups of five or six students. Each group should choose one word from the list and act out the word, or spell it by having each child take

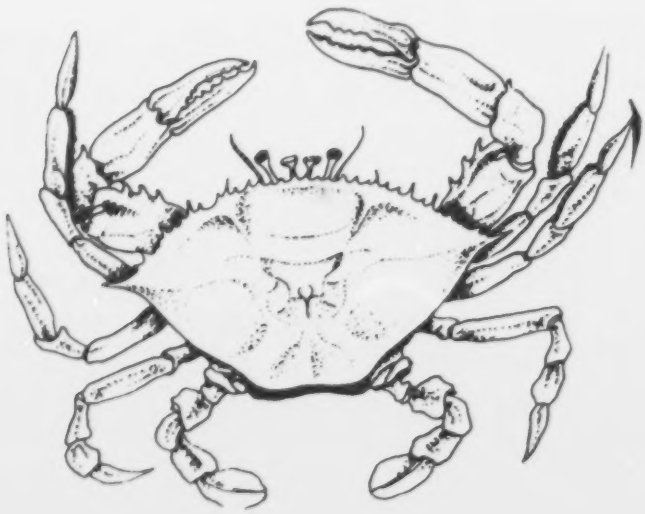


11

the form of one letter in the word. For example, if the word is rain, one student would stand with his/her arms arched out in front making a profile that looks like a lower case r, and so on until all letters are made.

You may also give each group of students letter cards which they can hold up in front of them, and the students must arrange themselves in the order which spells the new word correctly.

See the Background Information (page 19) to help explain the vocabulary terms.



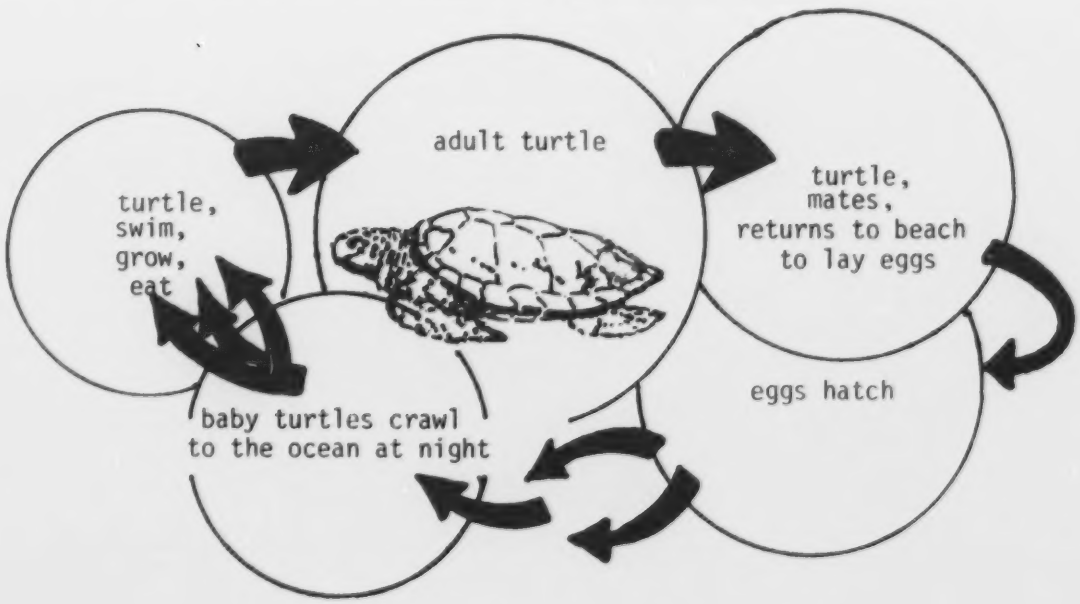
2. CHANGE

Begin by defining CHANGE. Change is: to make different, to modify, to replace with another. Find other definitions. Discuss changes relative to the students' life experiences. Ask the media specialist to provide pictures of baby birds, tadpoles, caterpillars, baby turtles, people, houses, cars, and other machines. Discuss how these things change. Why do they change? Point out that change is continuous.

3. CYCLE

Define CYCLE. A cycle is a repeating sequence of events that has no beginning and no end. Discuss a bicycle, a motorcycle, and lead into the life cycles of some animals that the students will recognize (butterflies, frogs, people). A good example of a cycle to discuss is the life of the Loggerhead Sea Turtle.

The Life Cycle of a Loggerhead Sea Turtle:



4. LITTLE JOHNNY RAINDROP

Read the story of Little Johnny Raindrop. What kinds of changes do the students recognize? Does the story show a cycle rather than a series of unrelated events? What makes a cycle? Discuss how cycles and changes are related.

5. SHELL SLIDES

Show the class a slide program prepared by the Department of Environmental Education and Instructional Development Services that shows living shell animals. At the same time, pass around shells that are empty so the students will begin to realize that shells are really parts of live animals.

6. BEACH CHANGES

Prepare the class for the field trip. Explain that the beach is a good place to study changes because so much change happens there. Have students speculate about the changes they might notice there: waves, tides, moving water, moving birds, moving sand.

7. PICTURE FRAMES

Have students create "picture frames." (See Appendix for full size example.) The frames will be the students' guides to zooming in on the details of the beach.

8. THE BEACH STORY

Read The Beach Walk (page 16) to help prepare students for the field experience.

THE BEACH WALK

The beach is full of life today. The sun is shining. The water is pounding the shore. The gulls and crabs are running back and forth looking for food. The air is clear and smells like salty sea water.

Tall trees stand high far from the waves. Up on the beach there are grasses growing in the sand. The sand is sprinkled with shells. If you look closely you can see that the sand is made up of shells. Shells are the way many animals protect themselves - like the clams and conchs and even turtles. Did you know that some turtles live in the ocean?

Look! Over there. There is a track in the sand. Let's take a look. The track is so wide and it goes all the way from the ocean to a hole in the sand. The hole is high on the beach. What could have made that track? I heard once that big sea turtles lay their eggs on the same beach where they were born. I wonder how they do that. I wonder if they can see the way things have changed on the beach.

Here comes a park ranger. Maybe she knows. The ranger is glad to tell us about the sea turtle tracks. She says that the tracks are from a loggerhead sea turtle. She says the turtle comes to shore at night to lay her eggs. The turtle needs the darkness. Many people

have built new homes on the beach. These homes have light that shines at night. If the mother turtle sees too much light, it scares her. She returns to the water without laying her eggs.

Now there are not many sea turtles left. Some people used to kill the turtles for food. They sold the turtle shells for money. Some wise people learned that the turtles were disappearing. These people made laws to protect sea turtles. Today, sea turtles are still in trouble. They are not being killed legally, but their nesting areas on beaches are being covered by buildings. Some people are helping to find ways to buy beaches as parks for people to enjoy and on which turtles may nest. Other people are making their buildings so that turtles can still nest on the beaches.

That was a wonderful story the ranger told us. We should keep walking though. It is getting late.

There are seaweed and driftwood lying on the beach here. I bet a storm came and brought these things up on the beach. My grandfather told me about a big storm once. It came many years ago.

The winds were strong. They blew the ocean water high onto the land. The wind and water made the sand and shells move. The sand on the beach went far into the ocean. The grass and trees were blown all around. Many houses near the beach were blown down.

When the storm was over, the beach looked very different. There was less beach to walk on in some places. There were pieces of trees and boats and houses floating in the waves.

My grandfather said the storm hurt some things. But it did some good, too. The storm brought more food for the animals on the shore. And it reminded people that the beach is always changing. The beach never stays the same.

The water is always moving. So, many of the sea animals move, too. The sand gets washed into and out of the water. It moves from one place to another. I can see shells moving in the water, too.

I found a crab hiding inside a shell. Look. The shell is the crab's home. I would like to take a shell home with me. But, I might take away an animal's home. I'll leave the shells so that they can turn into sand to make more beach, to give other people a place to walk on a sunny day.

BACKGROUND INFORMATION FOR THE TEACHER

Change is something we all experience every day of our lives. Change is a continuous process. The earth has been changing for billions of years by both natural and human-created processes. It continues to change even today. The process of change can be seen in many other ways. For instance, individuals change as they grow - physically, emotionally, mentally, socially. Physical change is seen more readily than other changes. Children can watch tadpoles turn into frogs, caterpillars turn into butterflies, crackers turn into crumbs, and houses being built in their neighborhoods, and understand that change is occurring.

Many agents cause change. Water is a powerful change agent that has incredible impacts. It moves, shapes, and forms the land as it sprinkles, pounds, and pours onto the earth's surface. The formation of the Grand Canyon is a great example of water's power. The sun also changes things. With its heat it melts solids and boils liquids, and provides the energy source for all life-related changes. At the beach, the sun evaporates water and bleaches color from shells. The oxygen and water vapor in the air cause iron and steel to rust.

They also cause aluminum and copper to "oxidize" or rust to a white or green powder.

People are very important change agents. Having the gift of intellect, we can use our technology to alter our surroundings almost anyway we want. The process of change can have both damaging and beneficial results.

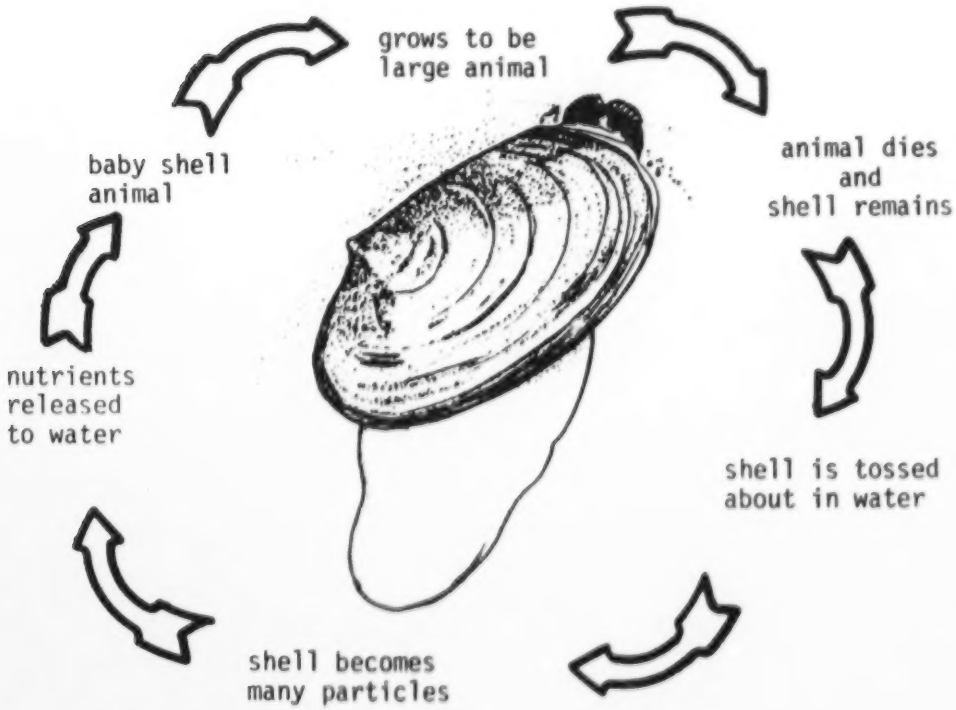
When most people think of the beach they think of sun, water, and sand. Since water, wind, and sun are major change agents, the beach is a logical place to study change.

The rise and the fall of the tides bring many changes to the seashore. Creatures who live in this intertidal zone must live in the air part of the day and under water part of the day. The constant pounding of waves and moving sand creates an ever changing environment for the creatures that live there. The wave movement causes the breakdown of shells into minute particles called sand. The waves also shift the sand from place to place.

The sun, a much worshipped part of our environment, warms and evaporates the oceans' waters by its radiated heat and forms clouds and moves the water through the water cycle. It also bleaches the colorful shells on the shore. The sun provides energy for virtually all life on the planet. Green plants capture the sun's energy to make food which provides the energy base for all other living things on earth.

THE SHELL CYCLE:

Shells become sand by wave action. The sand is eventually dissolved in and absorbed by the water which provides a nutrient base for new shell animals to reproduce and grow. When these animals die, the cycle begins again.


grows to be large animal
animal dies and shell remains
shell is tossed about in water
shell becomes many particles
nutrients released to water
baby shell animal

Trying It Out ... field trip

Section 3

The activities in this section establish the required information procedures, rules, and student work assignments for the community study field trip. The primary purpose of this section includes firsthand field trip experiences and activities for students to try out in a real world situation the information they have acquired.

FIELD EXPERIENCE

The field trip experience will allow the students a chance to see changes at a local beach. Activities will vary depending on weather, student preparation, trip site, time of year, and other factors, of the following is a representative description of the trip. Children should be prepared to get their feet wet and their clothes sandy. Closed, tie-on shoes must be worn at all times; no sandals or flip-flops.

1. BUS ACTIVITIES:

   The bus activities are designed to make use of travel time for instructional purposes and to help motivate the students.

   A) Each student or pair of students will be given a "changes" checklist which they will complete along the way. Students will mark the picture that represents anything they see or hear changing while riding the bus.

2. ORIENTATION:

All these activities will be done on the beach. Upon arrival at the beach, the field leader will give the class a brief orientation to the beach, explain rules including no swimming and shoes must remain on everyone's feet at all times. Boundaries will be set providing an area for students to work. SHELL COLLECTING WILL BE LIMITED TO ONE SHELL PER STUDENTS, TO BE USED IN SOME ACTIVITY OR PROJECT BACK AT SCHOOL. NO BAGGIES PLEASE!

3. PICTURE THE BEACH

The field leader will begin the activities on the beach with the students using their picture frames to "frame" their favorite beach picture. Next, the students will use their frames to shift their focus from the large scene to the tiny shells and pieces which make up the sand. Magnifiers may be used to help them "make themselves smaller" and get closer looks.

4. SHELL CYCLE

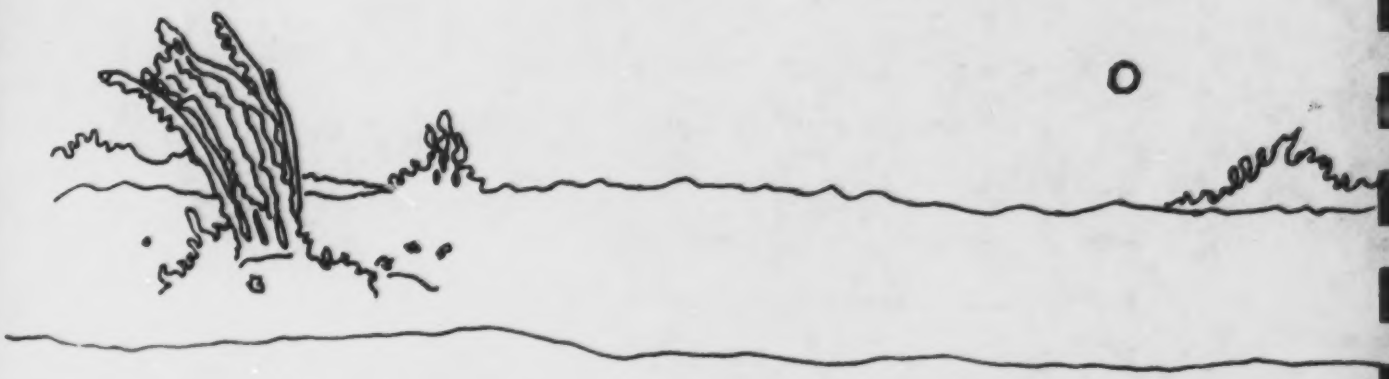
The students will complete a Shell Cycle worksheet where they will find and draw or trace a circle of shells from a large whole shell to a tiny piece of a shell.

-It is important that the students understand that shells are actually parts of animals that are or once were alive. The students will discover in looking

for different size shells that the sand is actually made up almost entirely of shell particles. Therefore, anything that affects the living shells also affects the sand. And, if we take shells from the beach, we are taking away sand. A creative dramatics experience, led by the EE/IDS field leader, will help the students understand the shell cycle. Students and leaders will be getting sandy - wear appropriate clothing.

5. <u>THE "WATER-WALK" - VARIATIONS</u>

The students may stand at the water's edge, ankle deep in the surf, feeling and watching the water under and around their feet; the class will be trying to discover what changes the water brings to the beach. Can they tell what effects the water might have on the shells, the sand, or the animals there? The students may move up and down the beach acting like the waves. While the students are in the water, they will be instructed to find one very colorful shell and bring it back to the dry sand. They should find a colorless or bleached out shell of the same kind. We will discuss the concept of the sun changing a colorful shell into a bleached out shell.



6. CHANGE DETECTIVES

   The students will play detectives in "Look Out for Changes," a discovery walk, searching for other changes occurring on the beach, specifically people-caused changes.

7. SCIENTISTS' VACATION

   Time permitting, the students will be given a chance to explore and discover other things about the beach.

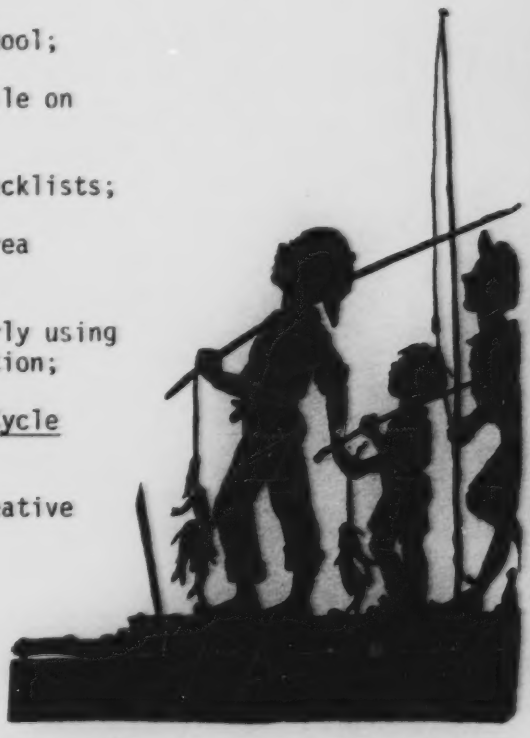
FIELD TRIP LEADERSHIP RESPONSIBILITIES

The EE/IDS field leader will:

1. select an appropriate, safe field site;
2. drive the bus;
3. organize on-site activities;
4. establish work area boundaries on the beach;
5. introduce all activities;
6. lead all creative dramatics experiences.

The classroom teacher will:

1. implement pre-trip activities;
2. collect parent permission slips;
3. provide for lunches and ice;
4. ensure that all students wear tie-on shoes at all times;
5. ensure that all students bring "picture frames" for use on the trip;
6. facilitate prompt departure from school;
7. maintain proper student behavior while on the bus;
8. help students with their CHANGES checklists;
9. help to keep students within work area boundaries;
10. help ensure that students are properly using their picture frames to focus attention;
11. help students complete their Shell Cycle worksheets;
12. participate with students in the creative dramatics exercises;
13. implement post-trip activities.



Self Teaching & Extending

Section4

The activities in this section should encourage students to self discover "new connections" that integrate their experiences with new applications related to the instructional concepts. Students are encouraged to teach others what they know, or to create new ways of expressing or applying what they have learned.

1. REVIEW

   Back at school, review with the class the things they discovered on the beach. Have a sharing circle where each student can tell one thing he/she liked most during the field trip or something he/she learned.

2. WHAT IF?

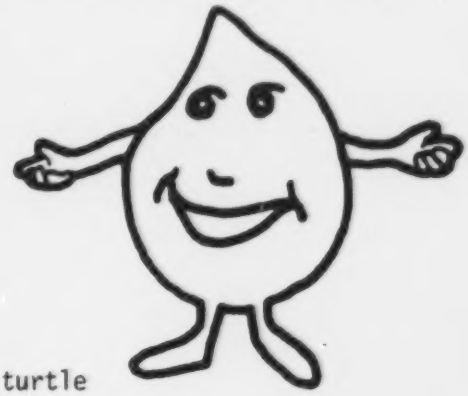
   Have the students discuss the following situations based on their new knowledge of change and cycles:

What changes would occur if:

- a storm came to the beach?
- the sun didn't come up?
- no one took litter away?
- the waves stopped moving?
- the ocean dried up?
- the wind never blew?
- condominiums covered all the beaches?

3. "WHAT IF" SKITS

Have the class act out or do a skit showing one of the changes described in #2, "What If. . ."



4. LITTLE JOHNNY RAINDROP

Have the class act out the play "Johnny Raindrop" using movement and character posters.

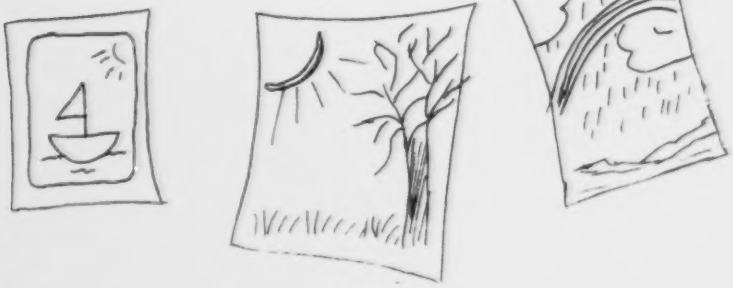
5. SEA TURTLE SKIT

Have the class do a skit of a sea turtle returning to the beach. What changes does she see after being gone so long? Show the film Sea Turtles of Florida (12.0185) before the students do the skit. It may be useful to divide the class into five teams, each team taking on a separate role within the sea turtle's life cycle:

Group 1 - eggs
Group 2 - hatchlings
Group 3 - young adult turtles
Group 4 - adults not ready to lay eggs
Group 5 - adults returning to the beach to lay eggs.

6. CHANGES PICTURES

Have students draw pictures of things they see changing from day to day. Share them with the class.



30

7. WRITING

Have students write two or three sentences about what they learned on the field trip about water, shells, changes, or cycles.

8. BULLETIN BOARD

Have students make a bulletin board of their picture frames, framing sentences they wrote or pictures they drew about the trip or other changes.

9. Choose a story, such as The Lorax or a film from the Appendix and discuss changes and/or cycles involved.

10. Give POST-TEST to students (Appendix, pages 39-45).

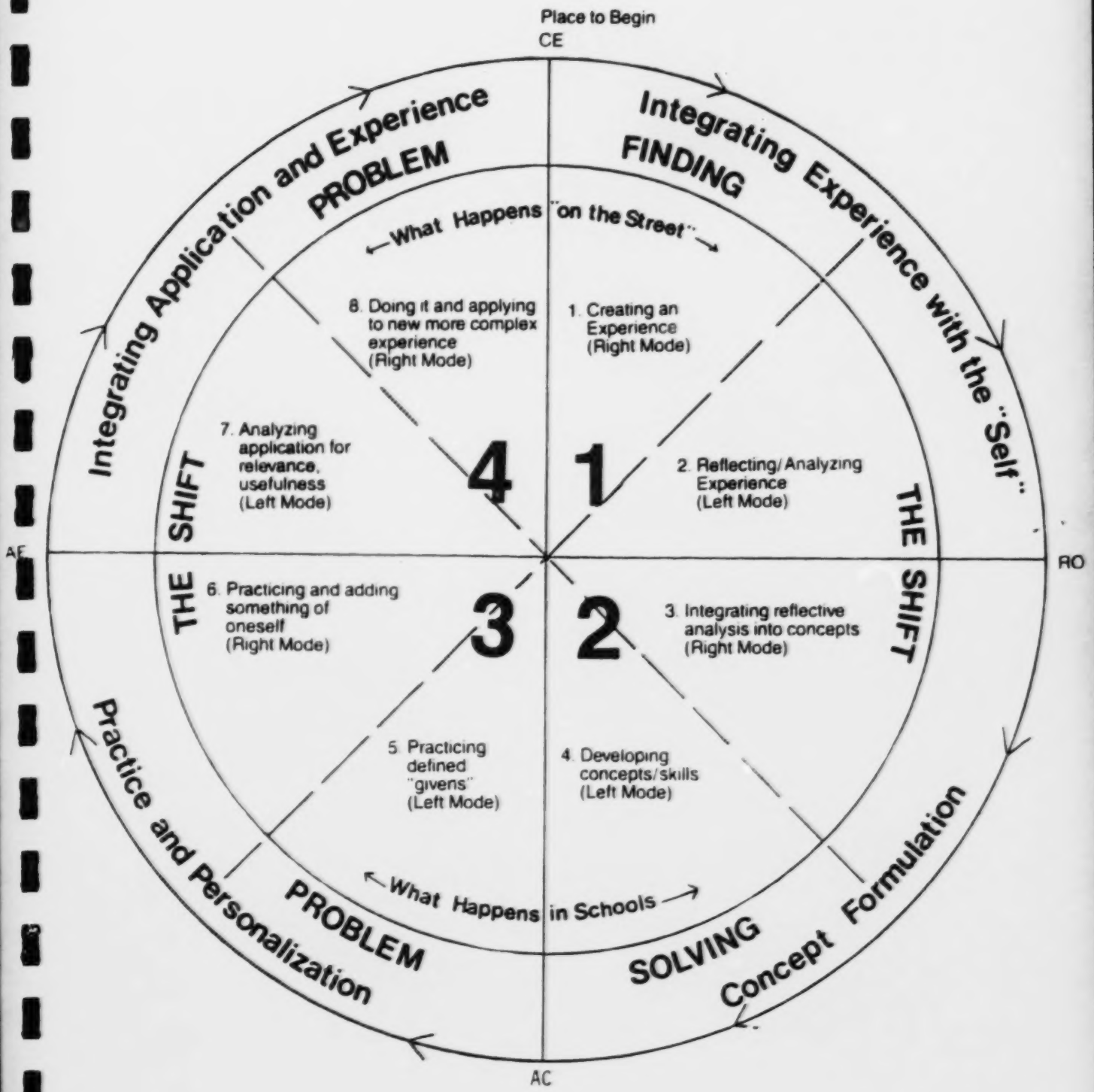
APPENDIX

33

4MAT SYSTEM MODEL
FOR
CYCLES IN THE SAND STUDY UNIT

© EXCEL, INC. 1979
All Rights Reserved

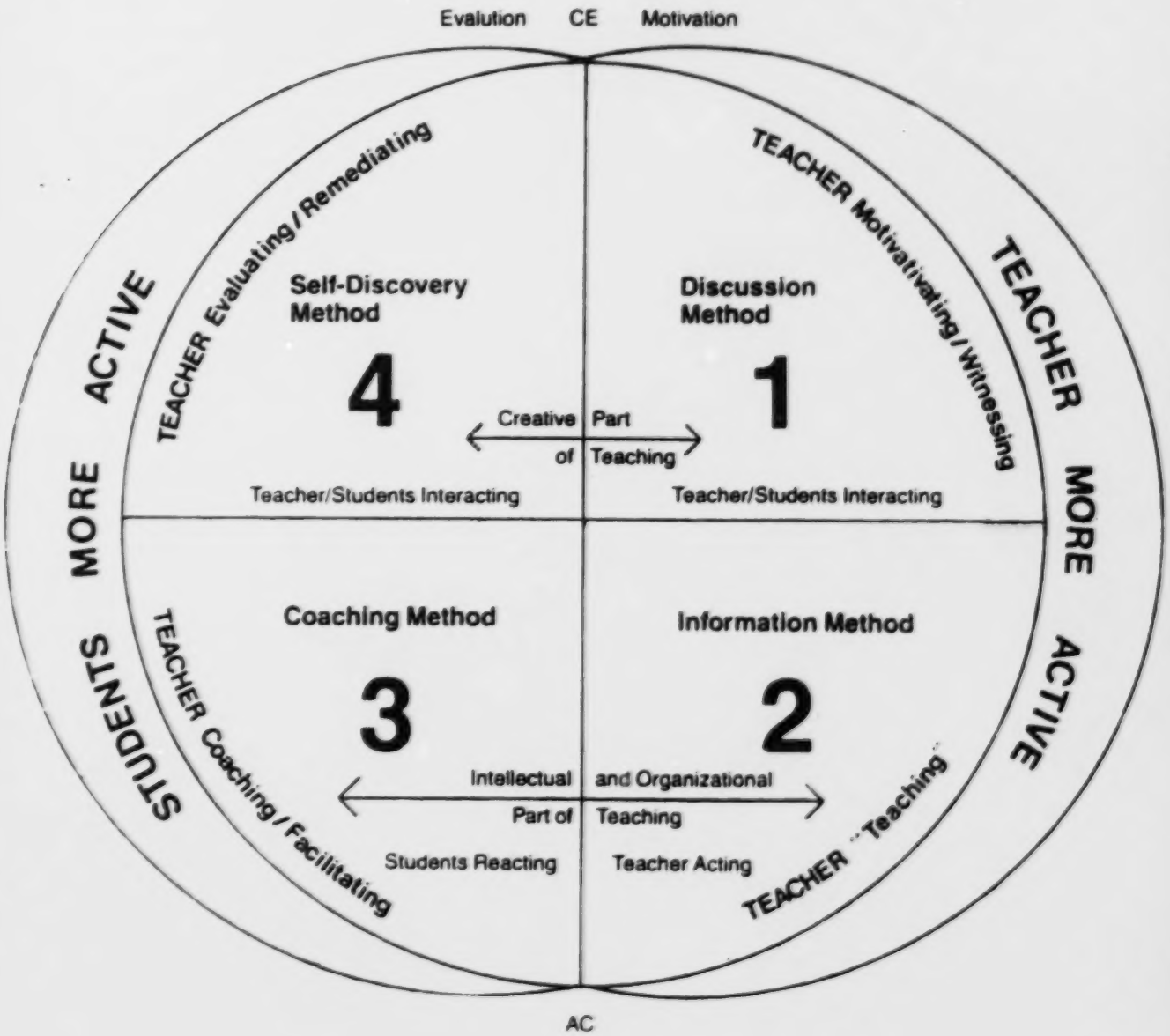
The Complete 4MAT System Model



The Teacher's Role: A Recapitulation

The teacher's role changes as s/he moves through the cycle of learning:

- from Motivator/Witness
- to Teacher/Information Giver
- to Facilitator/Coach
- to Evaluator/Remediator and Resource.



© EXCEL, INC

CYCLES IN THE SAND

2nd Grade

Cognitive Pre/Post Test

EE/IDS

1. Circle the thing that can grow into a plant.

EGG CASE

SEEDLING

SHELL

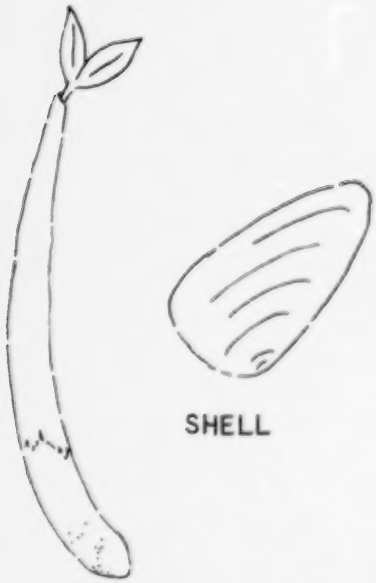
2. Circle the right answer.
Do all things change?

Yes No

3. Circle the right answer.
Does a cycle have a starting point?

Yes No

4. Circle the thing that was part of a live animal.

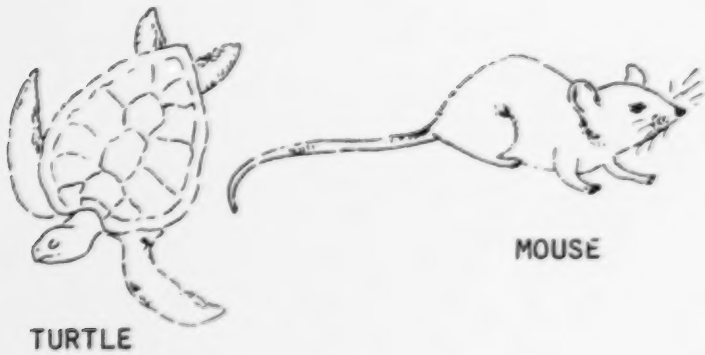


SEEDLING

SHELL

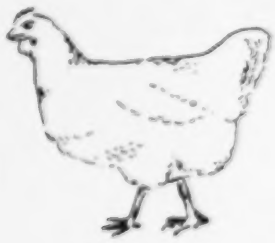
CAN

5. Circle the animal that crawls up on the beach at night to lay her eggs.



TURTLE

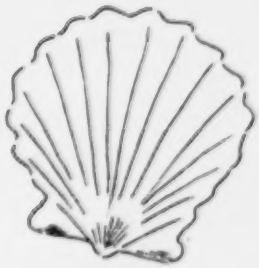
MOUSE



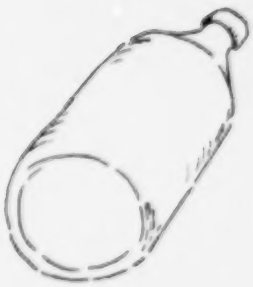
CHICKEN

6. Circle the picture that shows the right answer. Most Lee County beach sand is made of:

ROCK



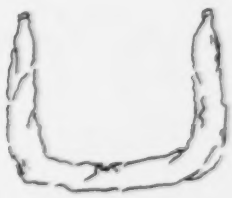
SHELL



BOTTLE

7. Circle the thing that was made by a living animal.

MANGROVE TREE



WORM TUBE

LOG

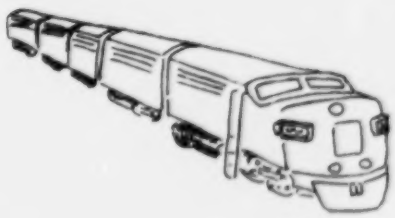
8. Circle the thing that was part of a living plant.

LEAF

WORM TUBE

SHELL

9. Circle the thing that moves most of the sand along the beach.

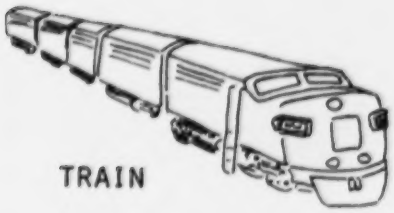


TRAIN

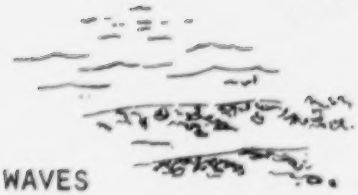
WAVES

PELICAN

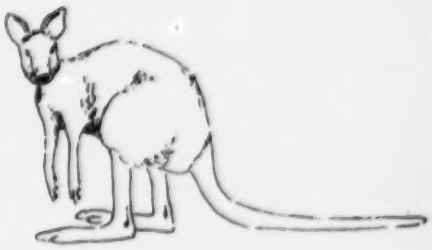
10. Circle 3 things that make changes happen on Lee County beaches.



TRAIN



WAVES

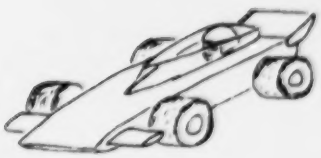


KANGAROO

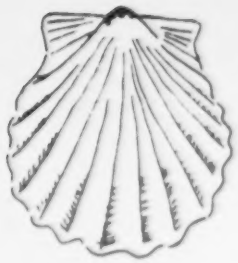
PERSON

SUN

RACE CAR

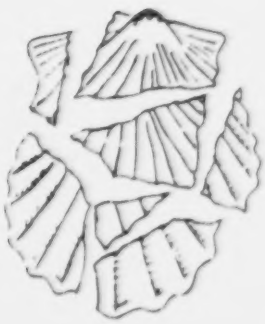


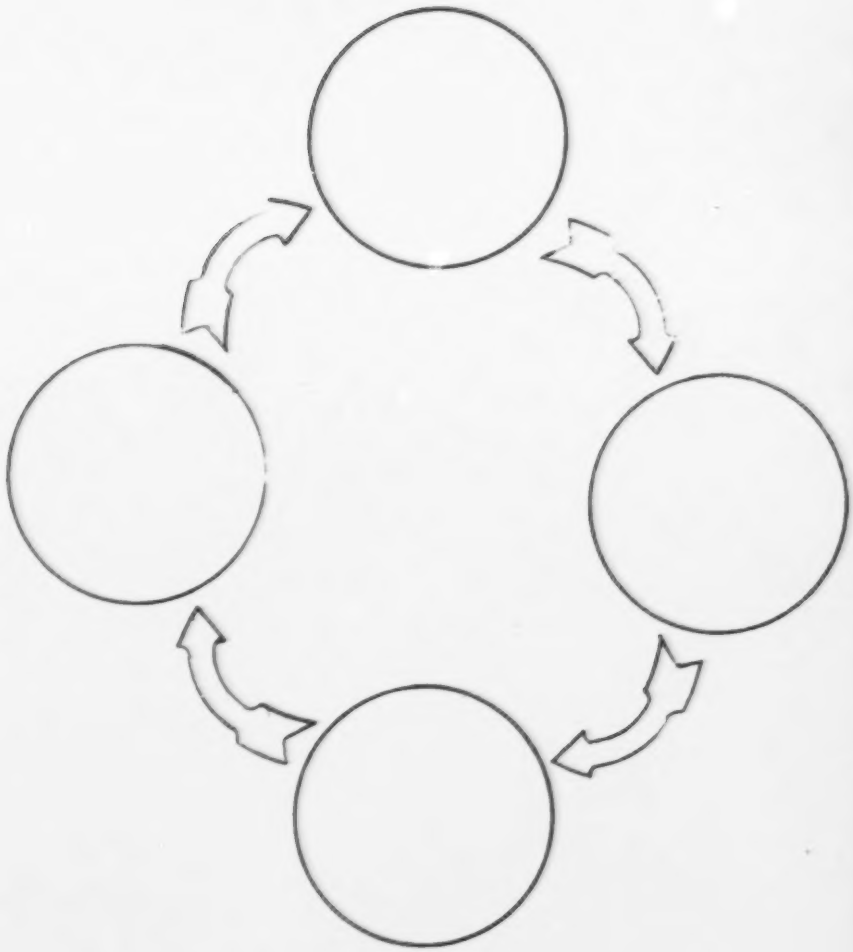
11. Place these pictures in order on the cycle chart below.

A. 

B.

C.

D. 



12. Circle all of the things that change.

PRE-POST TEST ANSWER KEY

1. seedling
2. yes
3. no
4. shell
5. turtle
6. shell
7. worm tube
8. leaf
9. waves
10. waves, person, sun
11.

12. all of them

Glossary

beach - area of sand and grasses where the ocean directly hits the land.

change - to make different.

cycle - a series of events that occurs again and again. It has no beginning and no end.

life cycle - the stages of birth, growth, reproduction, and rebirth of living things.

piece - a part; not whole.

rain - water drops that fall from clouds.

shell - hard outside part of a clam, oyster, turtle, etc.

vapor - bits of liquid in the air; water vapor is bits of water.

water cycle - the series of events including rain, evaporation, and cloud formation that keep water circulating on earth.

whole - complete; not part; not broken.

1. USE TAG BOARD OR STIFF PAPER, IF AVAILABLE.

3. DECORATE FRAME.

4. LAMINATE, IF POSSIBLE LEAVING MIDDLE OPEN.

5. BRING TO THE BEACH.

2. LAMINATE, IF POSSIBLE LEAVING MIDDLE OPEN

PICTURE FRAME

57

RESOURCE MATERIALS

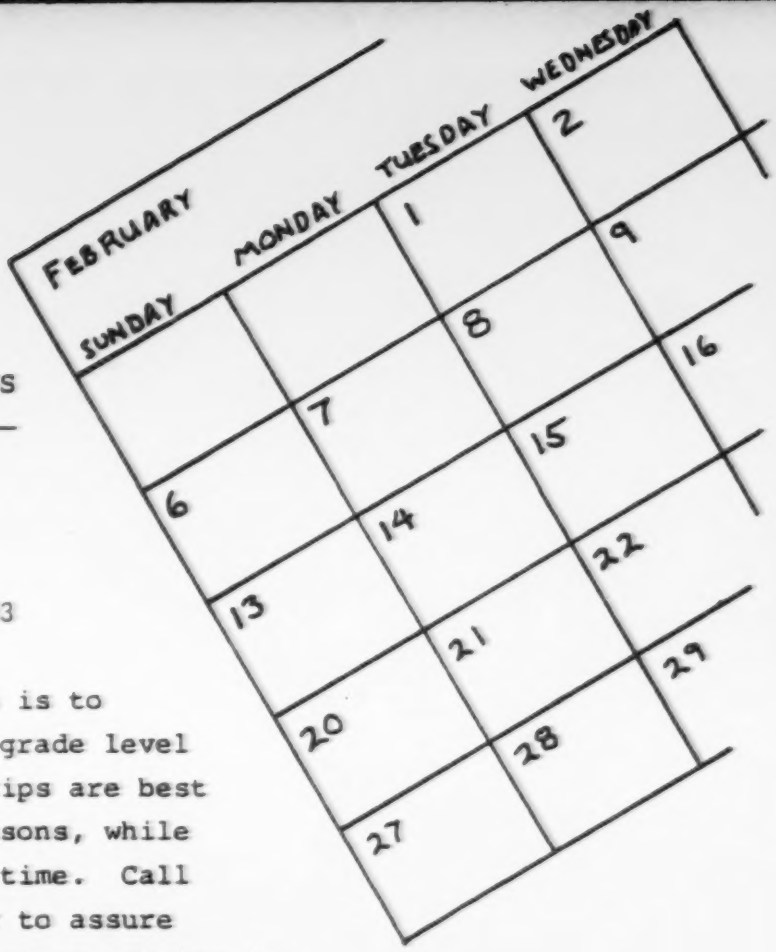
FILMS:

- The Lorax 13.0182
- Sea Turtles of Florida 12.0185
- Caterpillars Grow and Change 12.0667

BOOKS/ARTICLES

- Shells: Homes in the Sea - Paul Villiard
- Shells Are Where You Find Them - Clemons
- Loggerhead Turtle - Jack Denton Scott
- Let's Read About Sea Shells - Kay Ware
- Animal and Plant Life Spans - Alice L. Hopf
- Egg to Chick
- How Kittens Grow
- How Puppies Grow
- Let's Get Turtles

} Millicent Selsam



SCHEDULING CONSIDERATIONS

To arrange an EE/IDS community study trip, please call us at 275-3033

Our first recommendation is to use one of the standard grade level trips. Some of these trips are best done during specific seasons, while others work well at any time. Call early in the school year to assure getting a trip, and to assure getting it at the most appropriate time.

If the standard trip does not meet your needs, a custom trip could be designed. This would necessitate a meeting with EE/IDS staff to identify goals, design pre- and post-trip activities, and create a meaningful field experience. Any custom trip should have at least the impact of the standard trips. It should also mesh closely with the on-going curriculum. The classroom teacher and EE/IDS staff would share development responsibilities.

→ CALL 275-3033 ←

PARENT PERMISSION FORM

As parent or legal guardian, I hereby grant permission for _____ (student's name) to take part in a field trip to the beach via school bus at _____ (site) on _____ (date). I understand that this is an integral part of the ongoing school curriculum, and that the students will be studying change and "Cycles in the Sand." On the trip the students should expect to get sandy and to possibly get their feet wet. I'll be sure that my child wears tie-on shoes and dresses appropriately for the weather.

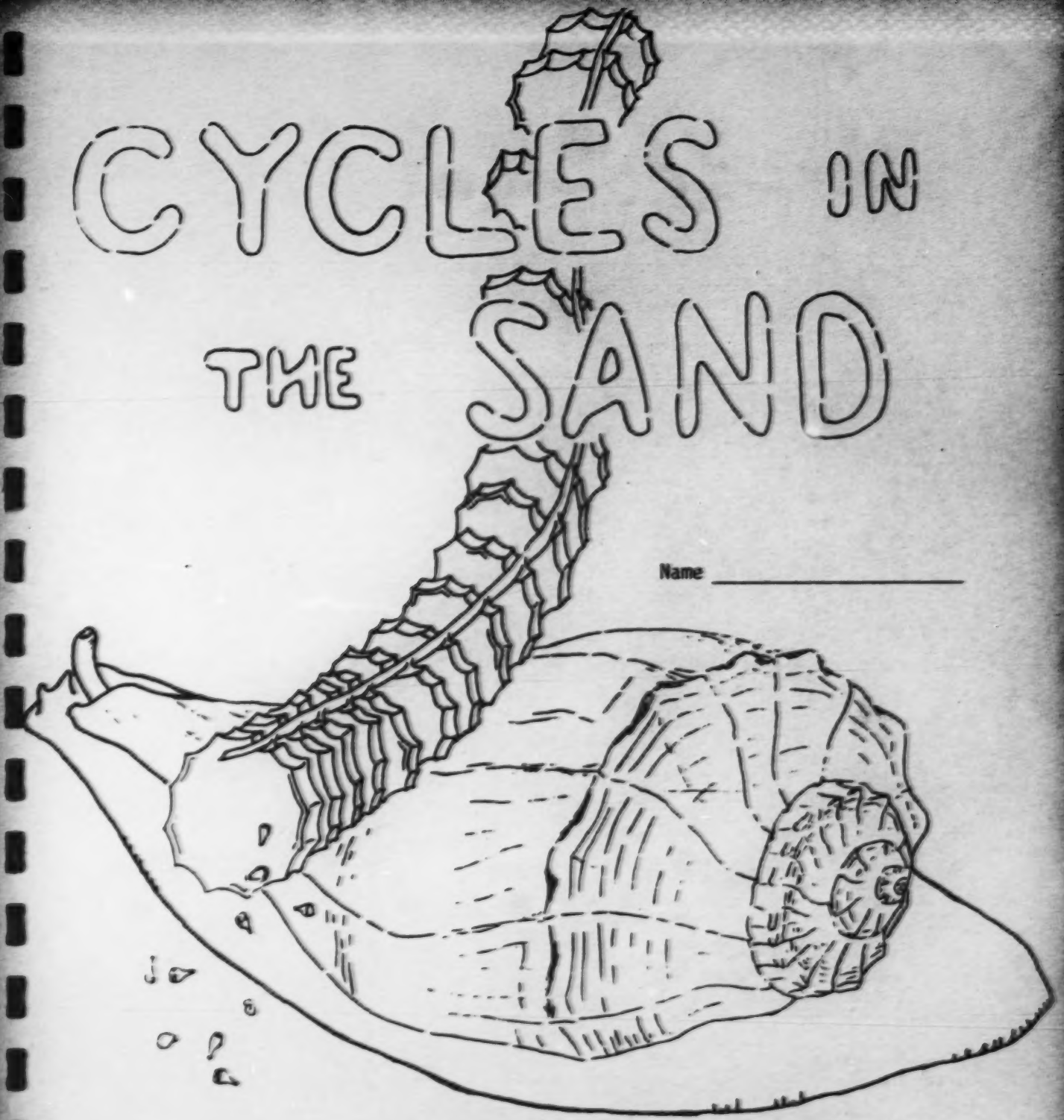
_____
(Parent or Guardian Signature)

_____
(date)

_____
(emergency phone number)

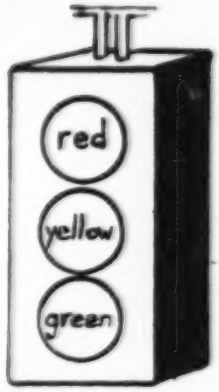
CYCLES IN THE SAND

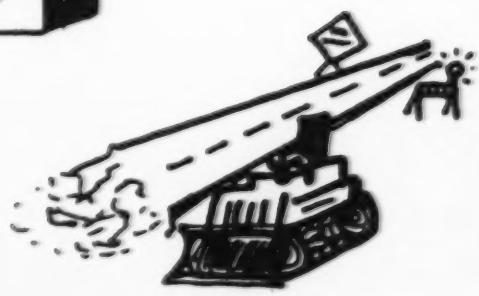
Name _____

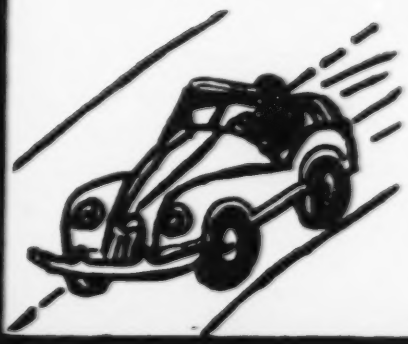


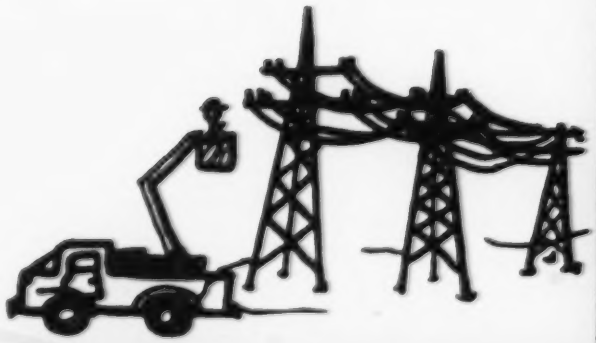
BEACH BOOK

CHANGES









THE SHELL CYCLE

Medlum Shell

Large Shell

Large Piece

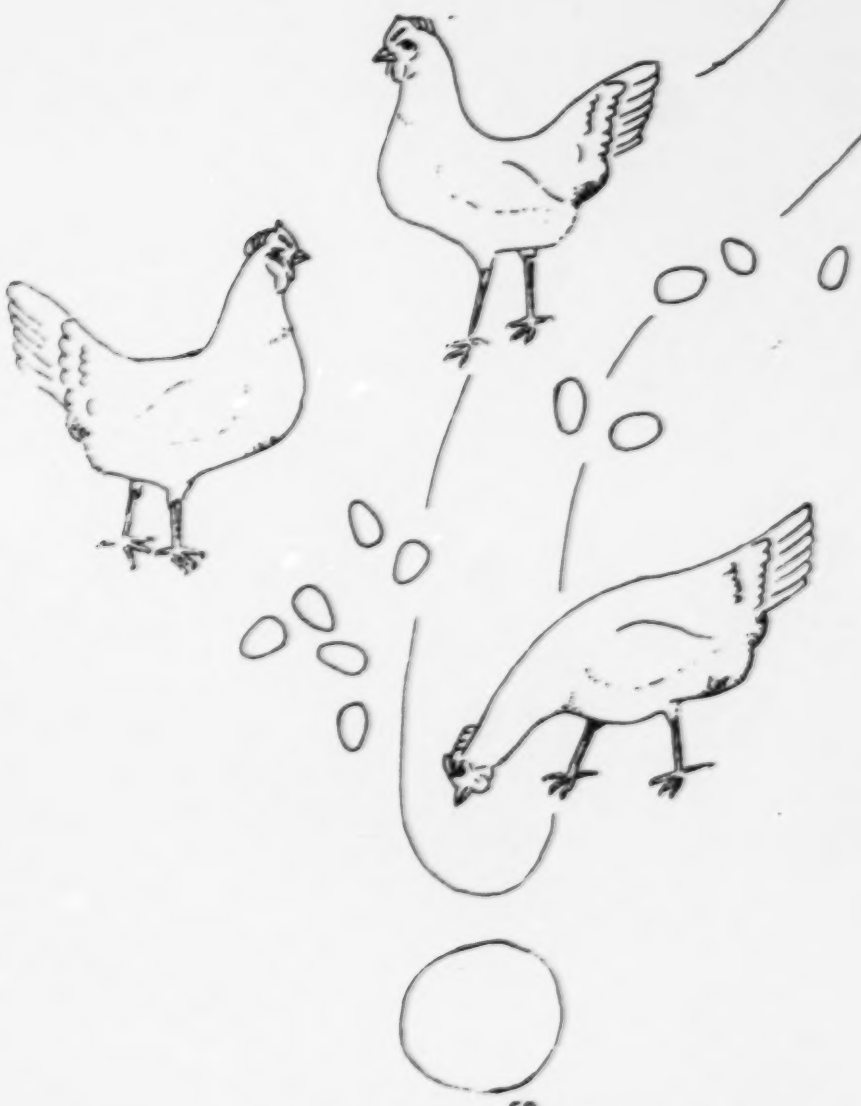
Medlum Piece

Small Piece

Baby Shell

67

WHICH CAME FIRST



This publication is one of the teaching units in the community studies series developed by the Lee County Schools, Florida.

The community study series is designed to assist teachers and students in learning through experience how the Lee County communities function, and the rights and responsibilities each of us shares in maintaining a healthy, productive community.

By systematically experiencing our community, students tend to see the pattern that connects the natural and cultural environment, and how each of us is an independent agent for change.

The community study instructional units have been field tested by teachers and students.

All guides are COPYRIGHTED. Full permission is granted for non-profit educational use.

The units have been produced by the staff of THE DEPARTMENT OF ENVIRONMENTAL EDUCATION AND INSTRUCTIONAL DEVELOPMENT SERVICES of Lee County School system:

Bill Hammond . . . . . .Director
Jo Ellen Kessler . . . . . Coordinator
Craig Hortman . . . . . .Resource Teacher
Rick Tully . . . . . .Resource Teacher
Keith Hanson . . . . . .Resource Teacher
Neil Wilkinson . . . . . .Resource Teacher
Cindy Bear . . . . . .Resource Teacher
Terry Lawson . . . . . Helping Teacher
Tom Miller . . . . . Helping Teacher
Lynette Dean . . . . Adv. County Staff Secretary
Cathy Scott . . . . . County Staff Secretary

with special contributions from former EE/IDS staff members, Lee County teachers, district staff, students, and members of the community.

Lee County Schools
Environmental Education/
Instructional Development Services
2055 Central Avenue
Fort Myers, Florida 33901
813-275-3033

CYCLES IN THE SAND

COMMUNITY STUDY UNIT SUPPLEMENT

FIELD TRIP GUIDE FOR TEACHERS

COMMUNITY STUDY UNIT

GRADE 2

LEE COUNTY SCHOOLS

THE SCHOOL BOARD OF LEE COUNTY

2055 Central Avenue
Fort Myers, Florida

Grace D. Bartleson
Chairman

Suzi Martin, Ph.D.
Vice Chairman

Margaret Sirianni
Member

TedSan S. Timberlake
Member

Barbara Wallace
Member

Karl Engel
Superintendent

Dr. Charles Godwin
Assistant Superintendent for Instruction

Dr. J. P. Lutz
Director, Elementary Education

Dr. J. Richard Lewis
Director, Secondary Education

Mr. William Hammond
Director, Instructional Development Services and Environmental Education

© Lee County Schools, 1988

CLASSROOM TEACHER GUIDE

TO

SECOND GRADE

CYCLES IN THE SAND FIELD TRIP

Trip Site: Sanibel Lighthouse Beach

HOW TO USE THIS GUIDE

This field trip guide is written for the classroom teacher who is planning to lead an environmental education field trip without the assistance of an Environmental Education and Instructional Development Services (EEIDS) staff member. Please read this guide carefully. Note the safety precautions and equipment lists.

The activities are arranged in the sequence usually followed by EEIDS staff members. However, once you have read this guide and considered the needs of your class, you may choose to rearrange, add, delete or adapt activities to fit your situation. There are more activities described here than you will need. Consider them all as options from which you can select the most appropriate activities for your particular class.

In the event that several classes are at the beach at the same time, you should be prepared to adjust your schedule so that you are not all trying to use the same space at the same time.

EQUIPMENT

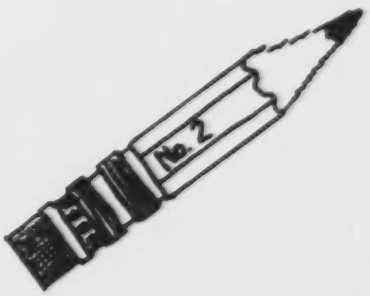
The following is a list of equipment and supplies you may need for this field trip. Some of them are optional. Some can be provided by EEIDS, while some must be provided by the school or teacher. **The teacher is responsible for calling the Department of Environmental Education (275-3033) to arrange for pick-up and drop-off of borrowed equipment.** Equipment <u>should</u> be clean and in working order when it is returned.

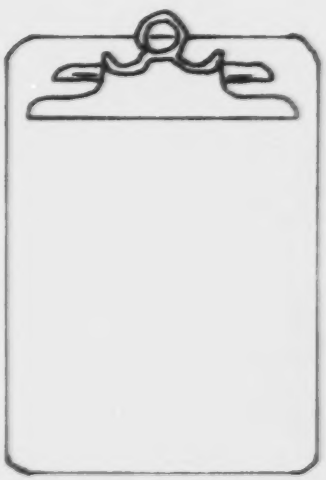
<u>Can be provided by EEIDS:</u>

Clipboards
Magnifying lenses
Dr. Suess' book, "The Lorax" (optional)

<u>Should be provided by teacher:</u>

Crayons or pencils
Cooler with lunches/drinks/ice
First aid kit
Trash bags
Cardboard picture frames





PREPARATIONS FOR A SUCCESSFUL FIELD TRIP

Prior to the Trip

1. Carefully read all materials sent to you by the Department of Environmental Education and Instructional Development Services.

2. We highly recommend that you visit the field trip site yourself before taking your class. It will help you be more familiar with the area and any potential problems as well as with places for leading your activities.

3. Ask the Department of EEIDS for the slide/script program designed for your trip. It will help familiarize you and your students with the trip.

4. Prepare your students for the trip by doing the pre-trip activities in the teacher unit and by explaining to them what they should expect while on the field trip.

5. Call EEIDS if you have any questions regarding the field trip site or activities.

On the Field Trip

1. Good student behavior is as important on a field trip as it is in the classroom. Review with your students all the rules and policies for behavior and safety as well as the consequences for breaking those rules.

2. Demonstrate proper and safe use of all equipment and supplies used during the day.

3. Make sure students and adults always wear tie-on shoes during the trip.

4. Students must be well supervised at all times during the day.

Special Considerations For

SECOND GRADE
CYCLES IN THE SAND

1. Swimming is not allowed on EEIDS field trips. If you allow students in the water, we recommend they go no deeper than ankle-deep.

2. Set and clearly mark boundaries for your field trip activities.

3. Watch for dehydration/sun stroke in your students especially on hot, sunny days. If necessary, take a shade break!

BUS ORIENTATION

Discuss with your students the concept of "change". Have the students try to think of things that change and things that do not change . Point out that everything around us is changing all of the time, there is nothing that does not change. Some changes are occurring very quickly, like the change in an egg if you drop it on the floor. Some occur so slowly that we cannot see the change happening, like the way the school bus gets rusty over the years. You may want to ask the students to think about their baby pictures and ask if they can name ways that they have changed.

Today you will be going on a trip to the beach because it is a good place to look for things changing. The beach is changing all of the time. During the drive to the beach have the students begin their search for changes. Distribute a crayon to each of the students. Show them the "changes" worksheet in their booklets and instruct them to look out the windows of the bus for changes that are occurring as you drive along. Have students circle the ones they see, and add any that are not on the worksheet by drawing them on one of the blank pages in the book. Look outside the bus as you are explaining this activity and find examples to show the students.

Prior to the bus departure, review the following school bus rules with the students:

1. Remain in seats.
2. Keep everything inside the windows.
3. Talk softly.
4. No eating or drinking on the bus.

ARRIVAL AT THE BEACH

The following description is intended for a field trip to the Lighthouse Beach area at the southern tip of Sanibel Island. It seems that every field leader does this trip in a different way. The descriptions present a group of options for you to try.

Be positive and energetic. Before leaving the bus ask the students to stay with you in a group and listen to you when you are speaking to them; the wind and the water will be making a lot of noise so the students will have to listen carefully. Remind them that they must keep their shoes on all day. There will be no swimming. They should remain within the boundaries that are established. Crowded beaches should have smaller boundaries. Make sure the students have their booklets, clipboards, and crayons or pencils (also picture frames if you intend to use them on the trip).

Once you leave the bus, you have several options. You may wish to visit the lighthouse and the exhibit boards prior to going out onto the beach. Or, you may wish to stop there just before lunch - after the morning's activities on the beach.

When you arrive on the beach, have the students follow you to an area large enough for the entire group to sit, free from obstructions such as logs, sea oats, tourists, etc. Make a large circle in the sand and have the students place their toes on the line and then sit down. Have them place their clipboards in front of them on the sand. This will be their "desk" for the day, and the beach around them will be the "classroom". Tell the students that they will be doing some activities together as a group, and some activities on their own. There will be time for them to explore the beach during the day.

* * * * * * * * * * *

AN OPTION...for getting the students into a circle out on the beach is to play "follow the leader". You are the leader, so plan your steps to illustrate change (and cycles, if you have already introduced this concept). Skip forward, slide sideways, walk backwards, skip forward, slide sideways, walk backwards, ... what comes next? The students should quickly grasp that their movements have changed and that these changes are occurring in a repeating cycle. A 30 second discussion at the end, sitting in a circle, will help reinforce the concepts of change and cycles.

* * * * * * * * * * *

* * * * * * * * * * *

ANOTHER OPTION...for an opening activity is to briefly discuss the changes the students saw on the way to the beach. Then ask them to tell you their favorite thing to do on the beach. Usually someone will suggest building sand castles. Tell them they will become scientists for the day and the first experiment is to see if things really do change at the beach. Set up boundaries, ask the students to find a partner to work with, and when you say, "go", they are to go down to the water's edge and build the neatest, biggest, fanciest sand castle they can build in 10 minutes. Remind them they are not to get wet. When time is up, have the students return to their desks. Tell them you will check the sand castles again later in the day to see if they have changed.

Return to the discussion of the changes they saw on the way out in the bus. When discussing the traffic signal, have the students close their eyes and pretend they are seated at the wheel of the school bus, stopped at a traffic light. What color is the light? After a moment the light changes color and they can drive off. What color has it changed to? Soon it changes color again. What color does it change to? What color comes next? And then what color? And then what color? Does it ever stop changing colors?

* * * * * * * * * * *

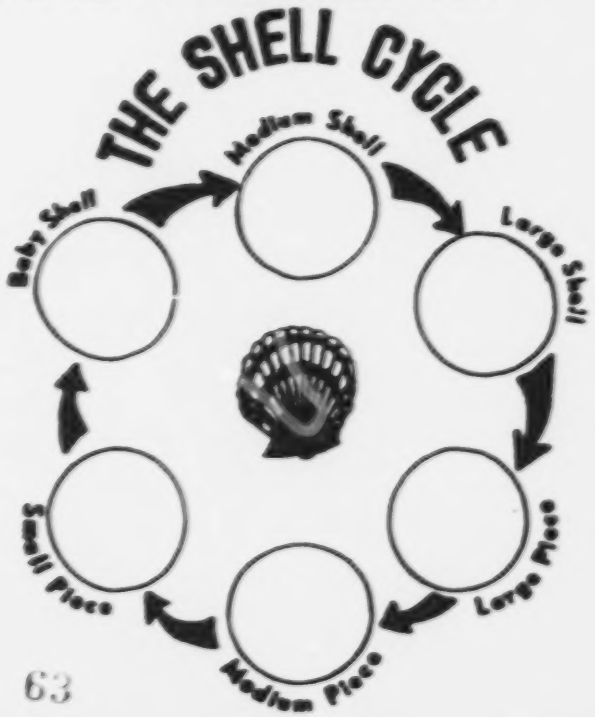
CYCLE CIRCLE

Introduce the concept of cycles. Have the students stand behind their "desks" and join hands. Begin to shuffle around the circle slowly so that everyone is revolving around the circle of clipboards. Ask the students if they are changing their position on the beach as you go around. Are they moving by other people's clipboards? Ask them to point to the beginning of the circle, or the end. Be sure they don't let go of each other's hands. Tell the students that there is a word for something that changes over and over again without ever stopping, and that has no beginning and no end. It is called a "cycle". You will be looking for a cycle that is going on at the beach today. Return the students to their own clipboards and then sit down.

SHELL CYCLE WORKSHEET

Have the students open their Beach Books to the Shell Cycle page, fold it back under the clip, and set the book back down in front of them on their clipboards. Tell them you are going to ask them to find some things to put onto this page. The first things they need to find are three shells of three different sizes that are not broken or chipped in any way. You may want the students to do their searching around the circle or in a small area near their clipboards. Give them a time limit of 2-5 minutes and let them start looking. When the time is up, call them back to sit at their clipboards. Help them place the three shells they found into the proper circles on the Shell Cycle page.

Next, the students are to find something else - three broken shells, three pieces of shells that are different sizes. Again give them 2-5 minutes to look in the same place they found the whole shells and then call them back to sit at their desks. Have them place these pieces of shell into the proper circles on the Shell Cycle page. Then, using their crayon or pencil, have them trace the outline of each shell or piece of shell in the cycle.



At this point you should discuss the cycle. Ask students how the broken shells turn back into baby shell animals. Ask, "Who likes milk?". Discuss how milk is good for people because it has calcium that helps our bones grow. Shell animals need calcium to grow too, and they get it from the broken shells that release their calcium to the sea water.

THE SANIBEL SEASHORE SEASHELL CYCLE SHUFFLE

With the Shell Cycle worksheet completed, tell the students that they are now going to find out how this cycle really works. You will be doing a little "break dancing" (breaking the shells, get it?). Have the students stand behind their clipboards and do what you do as you lead them through the Sanibel Seashore Seashell Cycle Shuffle. Tell them not to stop going around the circle unless you do. The following story should be told to them as they follow your actions:

"We are the largest clam shells on the beach (stand with your arms raised up high over your head and begin shuffling around the circle), laying out in the warm sun, enjoying the breeze, minding our own business, when along comes this second grade class from ____(insert school name)__, and the teacher walks up and steps right on us and breaks us in half. Crunch!! (bend at the waist, continue shuffling).

Then the rest of the class comes along and smashes us into smaller and smaller pieces. Crunch, crunch, crunch!! (drop your arms, one at a time, fall to one knee, then both knees, then crawl, continue to go around the circle). Now we are so small that we can barely see ourselves. (Stop at this point. Have the students pick up a handful of sand and look at it very carefully.)

What do you see? That's us! We're sand now. Let's get even smaller, so small we can float in the ocean (remaining very small, move back and forth as you float). So small that we can't even be seen. We're floating along in the water when all of a sudden along comes this hungry baby clam and he sucks up some sea water and gets us along with it (make disgusting slurping sounds as you are sucked up into the baby clam).

Now, we are part of the baby clam's shell. And as all baby clams do, we are starting to grow up (gradually rise up onto one knee, and the the other, begin to shuffle around the circle again).

We're getting bigger, and bigger, and bigger, until we are giant clams living out there in the water off Sanibel Island. Then one day a sad thing happens. The clam inside us dies. But, we don't die. We are still shells and we wash up on the beach with all the other shells. Now, here we are again, giant clam shells lying on the beach (arms over head again, as before. Continue shuffling).

Suddenly a huge wave comes crashing up on the beach and it picks us up and smashes us into one another (Smash!). We begin to break up into smaller and smaller pieces (Smash, smash, smash). Now we are so small we can

hardly see ourselves. (Get another handful of sand.) What do you see? Let's get even smaller so we can float out to the sea. Here comes a baby clam and she sucks us up and we become part of her shell. Now we are growing again, getting larger, and larger, and larger. Then one day the clam inside of us dies. What happens to us? That's right, we wash up onto the beach. Here we are again, up on the beach, giant clam shells, enjoying the warm sun, and the cool breeze. Along comes this family of tourists from Ohio with a great big ice cooler and they drop it right on top of us (Crunch)!"

The purpose of the preceding activity is to get the students to see how the shell cycle works, and to see that it continues forever without stopping. Continue through the cycle for two or three repetitions until the students begin to wonder when this is ever going to end. At that point ask them, "how much longer do we have to keep doing this?" Hopefully, someone will point out that it is a cycle and that, if we were really clam shells, we would have to keep doing it over and over again forever. You <u>will</u> get sandy and some students (teachers?) may be reluctant at first, but this kind of kinesthetic activity can be highly meaningful to many students.

Have the students return to their clipboards and sit for a moment. Now that we have seen the <u>steps</u> to the shell cycle, tell the students that we will now try to find out <u>what</u> <u>makes</u> <u>the</u> <u>cycle</u> <u>go</u>.

WILD WAVE WIGGLE WATER WALK

Ask the students to follow you to the water's edge and make a straight line, shoulder to shoulder, facing the water about ten feet from the waves. Tell them you are going to play a game that has three simple rules. Ask them to repeat the rules with you when you say them:

1. Hold hands with the people next to you - <u>don't</u> <u>let</u> <u>go</u>.
2. Don't get your feet wet.
3. Get as close to the water as you can.

In this activity, the students will end up running back and forth in time with the waves, forming a wave of their own with the rest of the class. They should be experiencing the motion of the water and noticing the way the sand and the shell particles are rolled around in the surf by the wave action. The waves are a primary cause of shell breakup and sand formation at the beach.

THE SUN DID IT

Before leaving the edge of the water, have the students find one colorful shell. Then have them come back up on the beach a little bit and find a similar shell that has no color but is completely white. Have them bring their two shells back to their desks and sit down. Ask the students to put one shell in each hand and hold onto them while they watch and do what you do. Slowly lie back on the sand and remain still for one minute (they will wonder what you are doing... you will wonder what you are doing...). Ask the students what would happen to a person that laid out on the beach all day like this. Would he/she change? What do you suppose happens to shells that lie on the beach? (They turn white.) Talk about the bleaching effect the sun has on the shells on the beach. If the shells did not turn white, our sand would be blue, and green, and red, and purple, etc.

PEOPLE'S PARTS

This activity has the students look for and think about the changes on the beach that are caused by people. Have the students walk in an area of the beach that is covered with shells (or have them watch you walk in that area). Ask them what is happening. People certainly have an effect on the beach. You might lead into a discussion of "good" and "bad" changes on the beach. (Breaking shells may not be "bad", but what about taking shells away from the beach, or leaving trash on the beach?).

CALCIUM CATCH

Have the students find a shell that has a hole drilled through it. The hole is evidence that an animal has eaten the animal that lived in the shell. The animal drills through the shell to kill the animal inside and then pulls it out to eat. Look for a shell that has a line scratched into it. These lines show where an animal has chewed on the shell to get some calcium to make its own shell bigger and stronger.

THE INNER CIRCLE

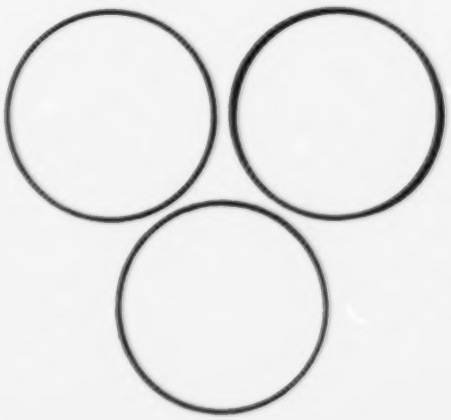
If the students keep bringing you "treasures" they have found on the beach, create a circle in the center of your clipboard area where these items can be collected. During a break in the activities, have the children share what they have found with the rest of the group.

ZOOMING IN

Upon arrival at the beach, use the picture frames as a focus for things that are around you at the beach. All of the things you can see are changing. Have students use the frames by holding them up in front of their faces. If they hold them close, they get "big" pictures of the scenery inside the frame. If they hold them at arm's length, they get "close-ups" with just a few things inside the frame. Use the frame to find a scene at the beach and then draw that scene in their booklet. When they have finished their drawing, have them use their frames to find their scenes again. How have the scenes changed?

THE TRAFFIC LIGHT HOP
(an alternative to the Seashell Cycle Shuffle)

Have the students stand behind their clipboards. Tell them to draw three circles just big enough to stand in. Two circles should be side-by-side with one more circle under them, kind of like a pretzel.



Ask the students to recall the traffic light they saw on the way out to the beach. Have them follow along with you:

> "The circles we drew will represent the three colors on the light. First the light was red (jump into the first circle). Then the light turned green (jump into the second circle). Then the light changed to yellow (jump into the last circle). Then it turned red again (back to the first circle). And then green (jump), and then yellow (jump), and then red (jump), etc..." "How long do we have to continue this jumping?" The answer is forever since the changing of colors is part of a cycle that goes on over and over without ever ending (except perhaps during a power failure or at the student crossings).

THE SCIENTIST'S VACATION

After you have finished your activities for the morning, tell the students that you will be sending them off on a vacation to reward them for all of their hard work and careful study. Distribute hand lenses to each student (if you haven't already) and remind them of their proper care. Also remind the students of the boundaries of the "classroom". You may wish to give the students some specific assignments during their vacation. If you have built sand castles that morning, be sure you check them now to see what kinds of changes have occurred. Give the students as much time to explore on their own as your schedule will allow.

LEAVING THE BEACH AREA

If you have not visited the exhibit boards and gone to see the lighthouse, now is a good opportunity. There are also rest room facilities behind the lighthouse and parking area, but you may choose to wait until you get to the causeway lunch area. As you board the bus to go to lunch, collect the hand lenses from the students and make sure that they are not taking anything from the beach that should remain there. (We generally discourage the collection of shells or other natural material from the beach.)

LUNCH

Lunch can be eaten at the picnic area on the Sanibel Causeway. (You may decide to eat back at the beach instead of traveling to the picnic area.) Rest rooms should be visited prior to eating, making sure the students wash their hands well. Ask the students to be careful with their trash during lunch - the wind will blow papers away from them. Instruct them not to feed the birds any of their lunch. The birds will be healthier if they eat their natural foods.

After lunch, depending upon the time remaining, you may wish to:

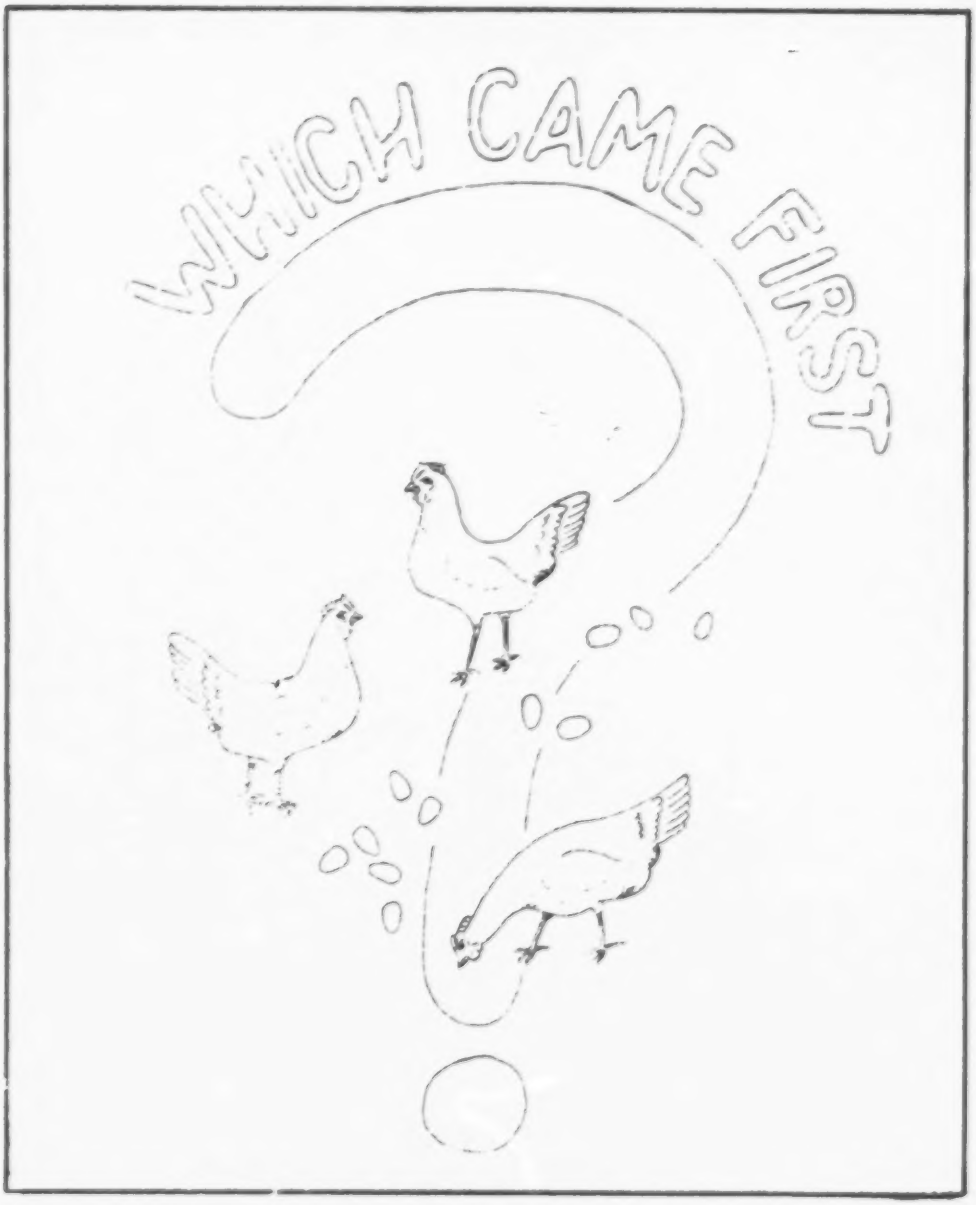
1. Read to the students Dr. Seuss' book, "The Lorax",
2. Do a short solo experience near the water's edge, and then have the students write a poem together. Lead them in creating the poem using the following 5 line format:

   - favorite thing they saw today,
   - two descriptive words for this thing,
   - how does this thing move,
   - what does it eat, or how do people use it,
   - another name for their favorite thing.

   Have them draw a picture of this favorite thing.

RETURN TRIP TO SCHOOL

Give the students their final assignment on the bus just prior to leaving the lunch area. On the way back to school, they must decide, "which came first, the chicken or the egg". (See the student workbook.) Back at school have them discuss the answer. Lead them to the understanding that since the chicken/egg story is a cycle, there really is no beginning or end.



This publication is one of the teaching units in the community studies series developed by the Lee County Schools, Florida.

The community study series is designed to assist teachers and students in learning through experience how the Lee County communities function, and the rights and responsibilities each of us shares in maintaining a healthy, productive community.

By systematically experiencing our community, students tend to see the pattern that connects the natural and cultural environment, and how each of us is an independent agent for change.

The community study instructional units have been field tested by teachers and students.

All guides are COPYRIGHTED. Full permission is granted for non-profit educational use.

The units have been produced by the staff of THE DEPARTMENT OF ENVIRONMENTAL EDUCATION AND INSTRUCTIONAL DEVELOPMENT SERVICES of Lee County school system:

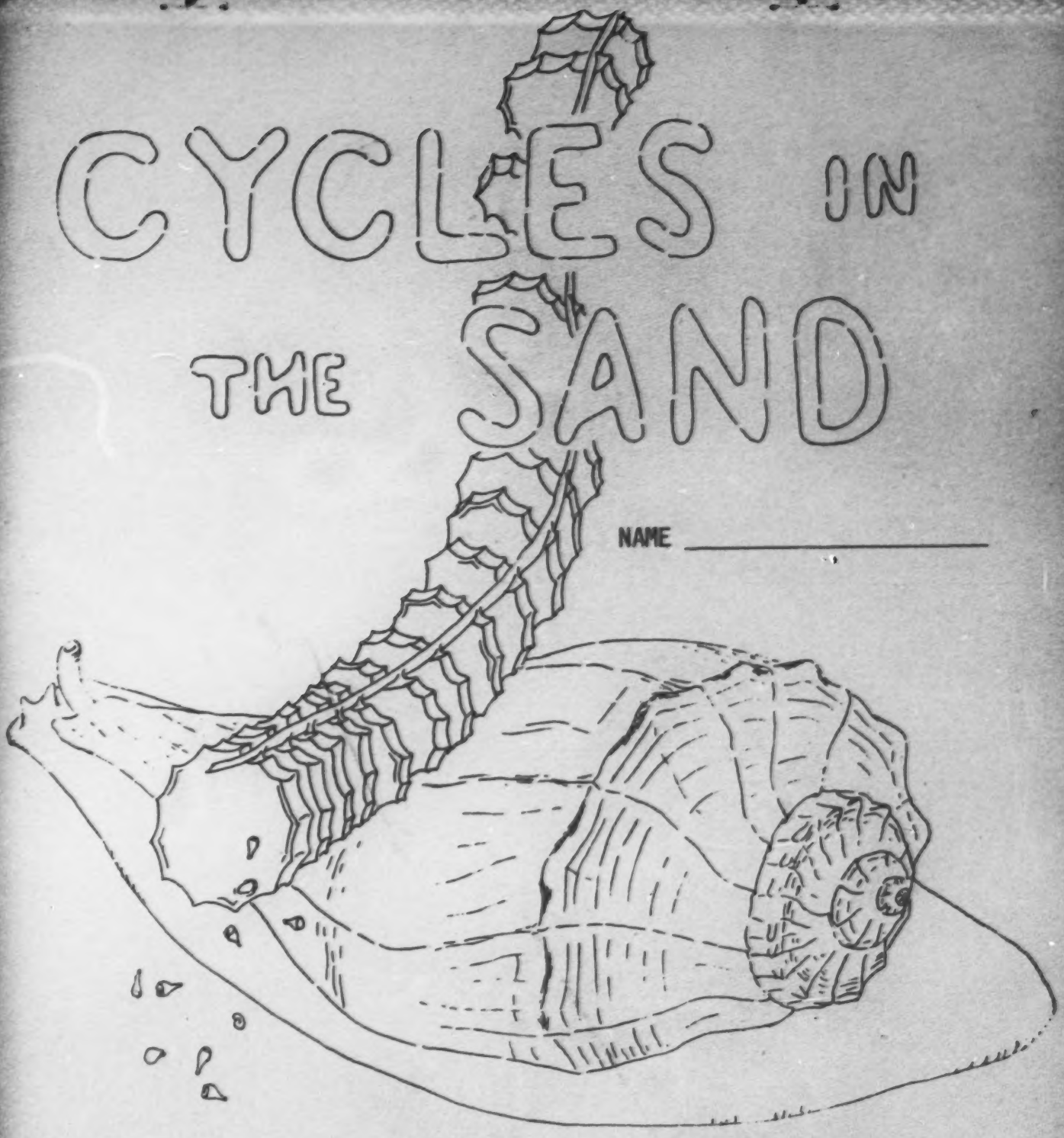
Bill Hammond ..... Director
Jo Ellen Kessler ..... Coordinator
Craig Hortman ..... Resource Teacher
Rick Tully ..... Resource Teacher
Cindy Bear ..... Resource Teacher
Keith Hanson ..... Resource Teacher
Neil Wilkinson ..... Resource Teacher
Tom Miller ..... Helping Teacher
Terry Lawson ..... Helping Teacher
Lynette Dean ..... Adv. Co. Staff Secretary
Cathy Scott ..... Co. Staff Secretary

with special contributions from former EE/IDS staff members, Lee County teachers, district staff, students, and members of the community.

Lee County Schools
Environmental Education/
Instructional Development Services
2055 Central Avenue
Fort Myers, Florida 33901
(813) 275-3033

CYCLES IN THE SAND

NAME _____



BEACH BOOK

9/85

COMMUNITY STUDY UNIT
GRADE 2
LEE COUNTY SCHOOLS

THE SCHOOL BOARD OF LEE COUNTY

2055 Central Avenue
Fort Myers, Florida

Grace D. Bartleson
Chairman

Suzi Martin, Ph.D.
Vice Chairman

John L. Pate
Member

Margaret Sirianni
Member

Barbara Wallace
Member

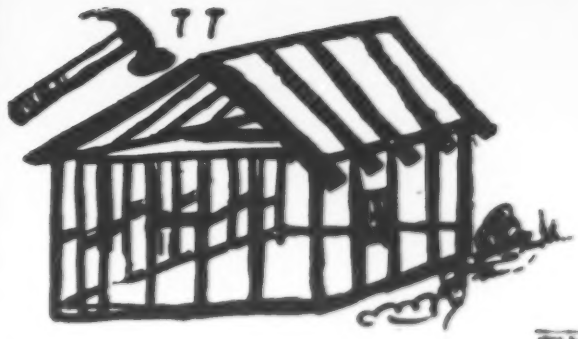
Karl Engel
Superintendent

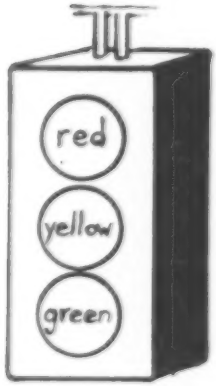
Dr. Charles Godwin
Asst. Superintendent for Instruction

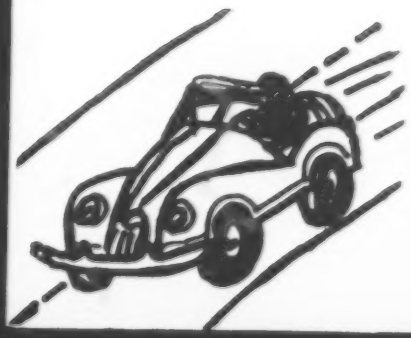
Dr. J.P. Lutz
Director, Elementary Education

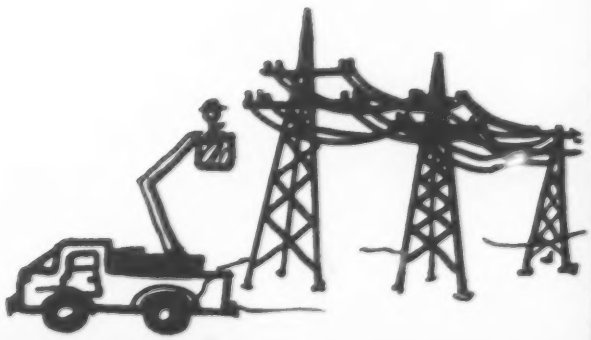
Mr. William Hammond
Director, Instructional Development Services and Environmental Education

CHANGES

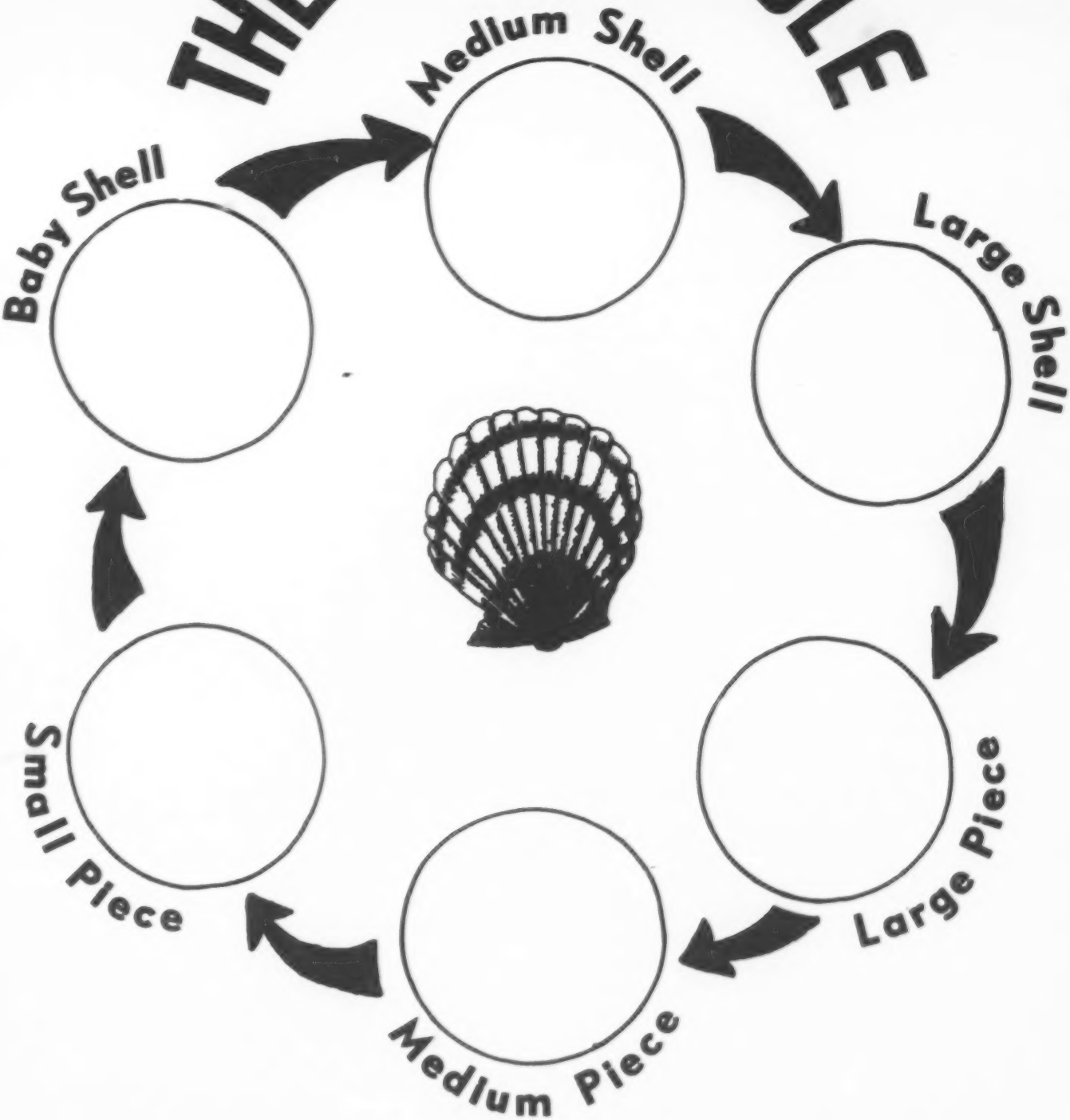




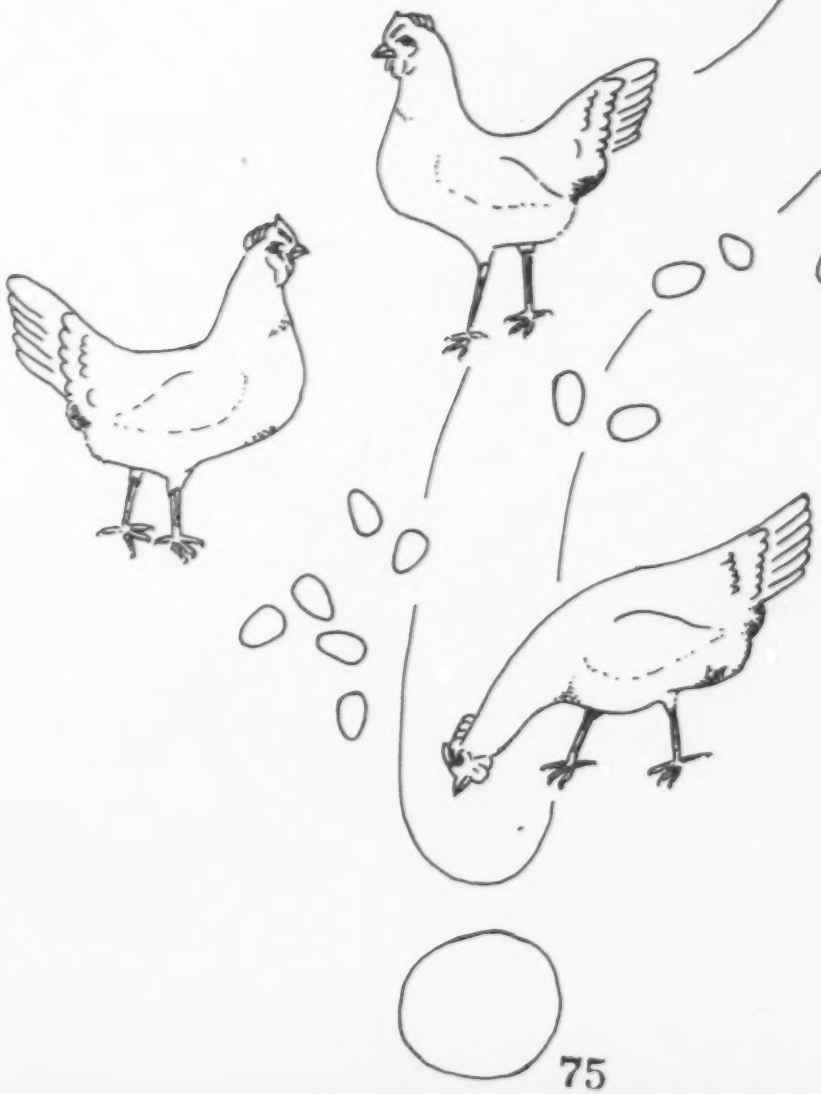




THE SHELL CYCLE



WHICH CAME FIRST



This publication is one of the teaching units in the community studies series developed by the Lee County Schools, Florida.

The community study series is designed to assist teachers and students in learning through experience how the Lee County communities function, and the rights and responsibilities each of us shares in maintaining a healthy, productive community.

By systematically experiencing our community, students tend to see the pattern that connects the natural and cultural environment, and how each of us is an independent agent for change.

The community study instructional units have been field tested by teachers and students.

All guides are COPYRIGHTED. Full permission is granted for non-profit educational use.

The units have been produced by the staff of THE DEPARTMENT OF ENVIRONMENTAL EDUCATION AND INSTRUCTIONAL DEVELOPMENT SERVICES of Lee County School system:

Bill Hammond . . . . . .Director
Jo Ellen Kessler . . . . . Coordinator
Craig Hortman . . . . . .Resource Teacher
Rick Tully . . . . . .Resource Teacher
Keith Hanson . . . . . .Resource Teacher
Neil Wilkinson . . . . . .Resource Teacher
Cindy Bear . . . . . .Resource Teacher
Terry Lawson . . . . . Helping Teacher
Tom Miller . . . . . Helping Teacher
Lynette Dean . . . . Adv. County Staff Secretary
Cathy Scott . . . . . County Staff Secretary

with special contributions from former EE/IDS staff members, Lee County teachers, district staff, students, and members of the community.

Lee County Schools
Environmental Education/
Instructional Development Services
2055 Central Avenue
Fort Myers, Florida 33901
813-275-3033